

**Mechanical & Engineering
Safety Division
(M&ESD)**

**NMA Approval Workshop
@ A&CC**

May 21 & 22, 2008

M&ESD

Dennis Ferlich, Division Chief

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M&ESD PRESENTATION

1. M&ESD Program Areas
2. Approval Programs
3. KEY Application Points

Program Areas

- Approval Programs
 - Diesel Powered Equipment
 - Dust Collection Systems
- Wire Rope Evaluations
- Fire Protection Systems
- Explosives Safety
- Technical Assistance
 - Accident Investigations
 - Training
 - Inspector and Industry Assistance

Wire Rope Nondestructive Testing



Nondestructive Testing Equipment

LMA 250

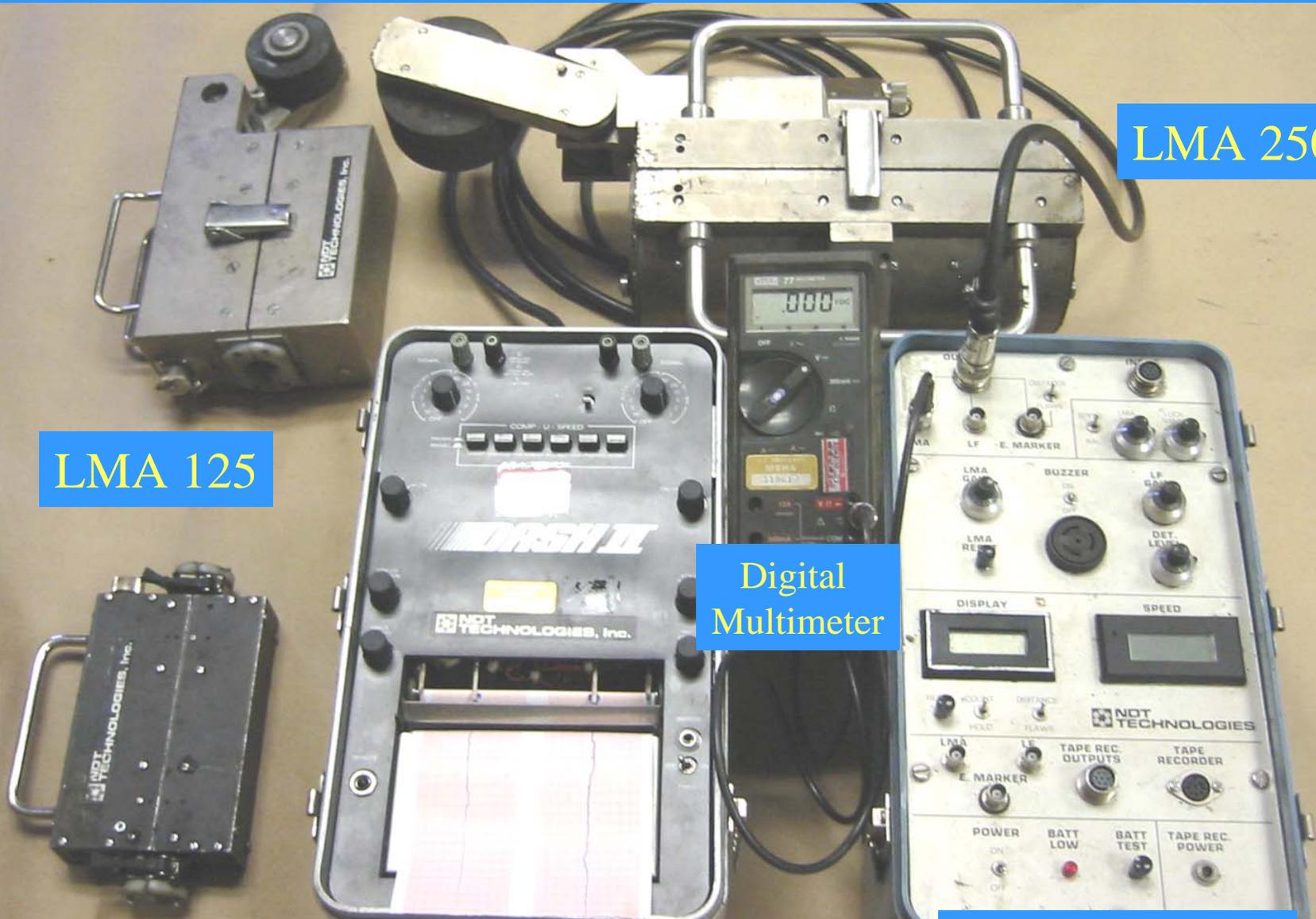
LMA 125

Digital
Multimeter

NDT Controller

LMA 75

Strip Chart Recorder



Fire Protection Systems Engineering



Fire Suppression Systems in Mines



Machine Fire Suppression Systems

Explosives Safety



Explosives Safety



Shot fired at Western Copper Mine

Technical Assistance



Examples:

- Inspector Support
- Training
- Accidents
- Regulations
- Litigation
- Stakeholder Requests for Compliance Assistance

Accident Investigations

Identify contributing factors



M&ESD TRAVEL IN FY 00-07



M&ESD

APPROVAL PROGRAM AREAS



M&ESD APPROVAL WEB LINKS

- <http://www.msha.gov/>
- <http://www.msha.gov/TECHSUPP/ACC/ACHOME.HTM>
- <http://www.msha.gov/TECHSUPP/ACC/application/application.htm>
- <http://www.msha.gov/TECHSUPP/ACC/StandardTestProcs/StandardTestProcs.asp>
- http://www.msha.gov/TECHSUPP/ACC/DBs_earch/PARlook.htm

Dust Collectors (Part 33)

McCabe.Phillip@dol.gov

304-547-2315

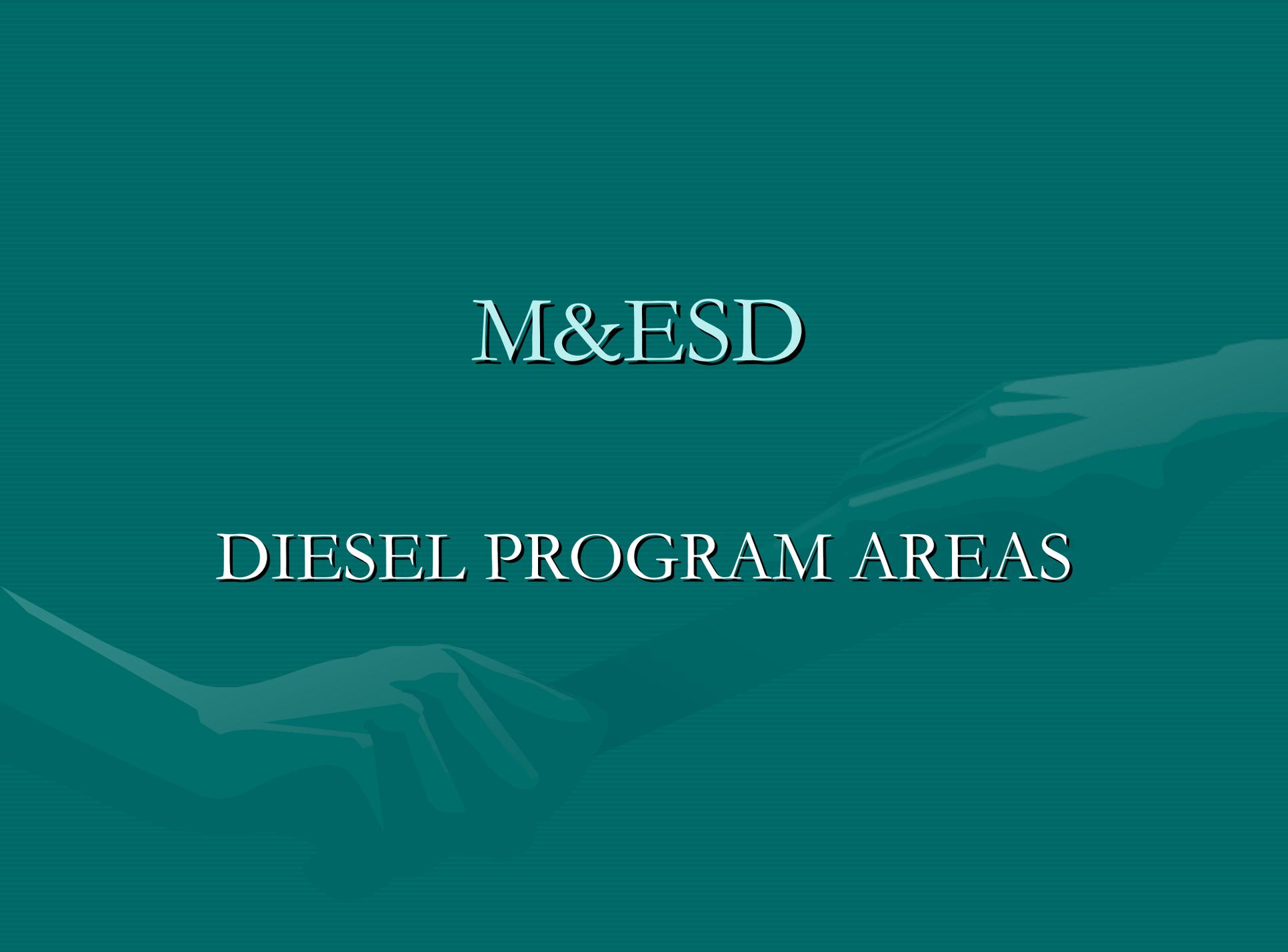
OR

Angel.James@dol.gov

304-547-2064

Dust Collectors (Part 33)

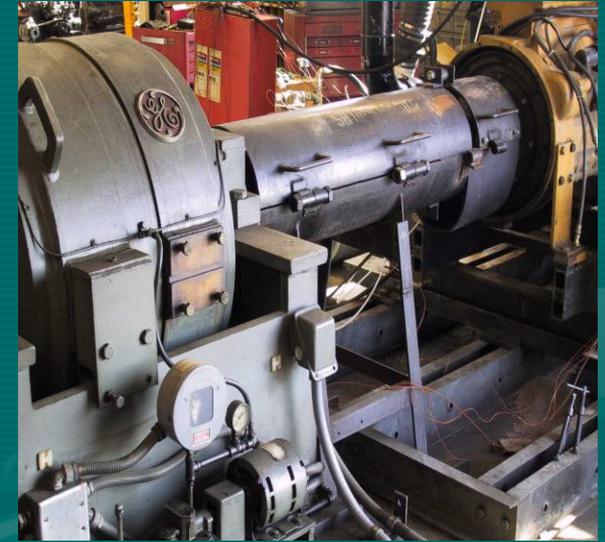
<http://www.msha.gov/30cfr/33.0.htm>



M&ESD

DIESEL PROGRAM AREAS

Diesel Laboratory



Productivity / Safety / State-of-the-Art

Diesel Program Areas

- Diesel Approval Process
- Special Approval Programs & Approval Changes
- Field Modifications
- New Technologies

Diesel Approval Process

BUILDING BLOCKS

- Part 7, Subpart E, Category B Engines
- Part 7, Subpart E, Category A Engines
- Part 7, Subpart F, Power Package
- Diesel Electric Evaluation (DE)
- Part 36 Machine Approval - Coal -

Diesel Engines

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OR

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Diesel Approval Process

Part 7, Subpart E, Category B Engines

- <http://www.msha.gov/30cfr/7.0.htm>
- <http://www.msha.gov/30cfr/7.83.htm>

DIESEL ENGINES

PART 7

Testing by Applicant or Third Party

DIESEL ENGINES

Applicants Submits Certified Statements

- Compliance with Design Specifications
- Compliance with Test Requirements
- Quality Assurance

DIESEL ENGINES

Third party laboratory evaluations

- Test and Observations

- MSHA observes first test and any additional testing deemed necessary

Diesel Approval Process

Part 7, Subpart E, Category A Engines

- <http://www.msha.gov/30cfr/7.0.htm>
- <http://www.msha.gov/30cfr/7.83.htm>



July 31, 2006

Letter to all Diesel Power Package Manufacturers and Diesel Engine Manufacturers

The development of permissible diesel equipment utilizing newer engines has been hindered due to the small number of permissible engines approved under Code of Federal Regulations, Title 30 Part 7 Subpart E. This letter announces a change in the Mine Safety and Health Administration's (MSHA) Approval and Certification Center (A&CC) procedures to help promote a greater availability of engines for permissible machines.

The A&CC approves engines that are installed in permissible diesel equipment for use in underground gassy mines. Part 7 lists two categories of engines: Category A, (engines for use where permissible electric equipment is required) and Category B, (engines for use where nonpermissible electric equipment is allowed). Part 7 defines an applicant as an organization that manufactures or controls the assembly of a product and that applies to MSHA for approval of that product. To date MSHA has only considered engine manufacturers as applicants for engine approvals. Due to the limited supply of permissible engines, MSHA will also consider parties other than the engine manufacturer as applicants for Category A engine approvals under specific conditions. Applications for Category A diesel engine approvals from a third party will be accepted under the following conditions:

- The Category A application must be made in conjunction with an application for a diesel power package approval under Subpart F.
- The diesel engine must have prior approval under Part 7, Category B.
- The engine must operate within the engine manufacturer's specifications.
- MSHA will require additional specifications that are not required for Category B. The applicant may be responsible for coordinating efforts between the Category B approval holder and MSHA to ensure that the additional information is provided.
- Exhaust treatment devices may be submitted for evaluation with the engine. Devices will be evaluated to determine their effects on engine ventilation rate, particulate index, etc.
- Power ratings and speeds other than those in the Category B approval may be submitted with the Category A application. These specifications cannot be greater than Category B settings. Settings will be tested to establish ventilation rates and particulate indexes.
- Applicants must follow Part 7 procedures which include test laboratory requirements. General requirements for Part 7 approvals specified in Subpart A must also be met.
- MSHA may conduct the Category A testing at the A&CC, depending on testing backlog.
- A Category B approval label will be installed by the engine manufacturer, and a Category A approval label must be installed by the diesel power package manufacturer.

If you have any questions, please call Mr. Robert Setren at 304-547-2070.

Sincerely,

A handwritten signature in black ink, appearing to read "John P. Faini".

John P. Faini

Chief, Mechanical & Engineering Safety Division, A&CC

Permissible Diesel Power Packages

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Permissible Diesel Power Packages

<http://www.msha.gov/30cfr/7.97.htm>

Permissible Diesel Power Packages

PART 7 :

Testing by Applicant or Third Party

HOWEVER

Preamble of diesel regulations stated
MSHA would continue to test.

Permissible Diesel Power Packages

- Requires a Category A Approved Engine
- Approved Under Part 7 Subpart F
- Similar to Part 36 Safety Comp. Systems
- Exhaust System
 - explosion proof requirements
 - exhaust gas cooling
 - flame and spark arresting
 - surface temperature controls

Permissible Diesel Power Packages

- Intake System
 - explosion proof requirements
 - intake flame arrester
 - emergency intake air shut off valve
- Safety Shutdown System
 - high coolant temperature
 - high exhaust gas temperature
 - low water shutdown on wet systems
 - other shutdown requirements

Diesel Machine Approval

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OR

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Diesel Machine Approval

<http://www.msha.gov/30cfr/36.6.htm>

Diesel Machine Approval Required Drawings

Simplified Drawings are acceptable
(actually they are **PREFERRED**) in
lieu of Production Drawings

Diesel Machine Approval Required Drawings

1. General Arrangement Drawing
2. Fuel System Drawing
3. Hydraulic System Drawing (Braking/Safety System/Steering System)
4. Pneumatic System Drawing (Starting / Braking/ Safety System)
5. Operator's Compartment Drawing
6. Approval Plate Drawing

Diesel Machine Approval Required Forms and Checklists

- Machine Factory Inspection Form
- Machine Permissibility Checklist

Permissible Diesel Machine Features

- Installation of Power Package
- Hydraulic and Pneumatic Systems
- Brakes/Steering
- Fuel System
- Exhaust Gas Dilution

Permissible Diesel Machine Features

- Guarding
- Hose Routing
- Operator's Compartment
- Fire Suppression/Fire Extinguisher
- V belts shall be static conducting

Diesel Machine Approval

Certification Statements

1. Guarding & Hose Routing
2. Operator's Compartment
3. Fire Suppression/Fire Extinguisher
4. V belts shall be static conducting

Diesel Machine Approval

UNIQUE

- Total machine approval (brakes, operator safety, etc.)
- Evaluate to Part 75 (Subpart T Diesel-Powered Equipment) requirements
- Permissibility Checklists
- 30 CFR § 36.20(a) MSHA will test only equipment that in the opinion of its qualified representatives is constructed of suitable materials, is of good quality workmanship, based on sound engineering principles, and is safe for its intended use.

Diesel Machine Approval

Machine Inspection

- Need Completed FIF
- Done at the site you specify
- Permissibility Checklists
- Exhaust Gas Dilution Test
- Drawing Comparison

Special Approval Programs & Approval Changes

- RAMP
 - example, making change to a manifold used on many different power packages
- Category A Engine Approval to Power Package Manufacturer
- Subassembly Certification
 - example, flame proof ports

New Technology

- 30 CFR § 36.20(a) MSHA Since all possible designs, arrangements, or combinations of components and materials cannot be foreseen, MSHA reserves the right to modify the construction and design requirements of subassemblies or components and tests thereof to obtain the same degree of protection as provided by the tests described in Subpart C of this part.

New Technology

- Interested in assisting the mining industry in the safe and timely introduction of new technologies which will enhance safety and health
 - diesel particulate filter
 - dry exhaust gas conditioning system
 - flame proof port

Field Modifications

- Issued to Mines
 - Informal! Accept Forms or Letter
 - For changes to specific serial number machines at specific mine sites.
 - Description of change and also sketches, drawings, photos

KEY APPLICATION POINTS

1. CONSULT US

(NO FEE Before Applying)

A faint, semi-transparent image of two hands shaking is visible in the background, centered horizontally and vertically. The hands are rendered in a light teal color, matching the background. The background itself is a solid, dark teal color.

KEY APPLICATION POINTS

1. CONSULT US (Before Applying)
2. *Apply Early*



KEY APPLICATION POINTS

1. CONSULT US (Before Applying)
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3. *Submit Sufficient & “GOOD” Drawings*

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1. CONSULT US (Before Applying)
2. Apply Early
3. Submit Sufficient & “GOOD” Drawings
4. *Include Required Certification Statements*

KEY APPLICATION POINTS

1. CONSULT US (Before Applying)
2. Apply Early
3. Submit Sufficient & “GOOD” Drawings
4. Include Required Certification Statements
- 5. *Respond & Understand Discrepancies***

KEY APPLICATION POINTS

1. CONSULT US (Before Applying)
2. Apply Early
3. Submit Sufficient & “GOOD” Drawings
4. Include Required Certification Statements
5. Respond & Understand Discrepancies
- 6. *Drawings = Parts***

KEY APPLICATION POINTS

1. CONSULT US (Before Applying)
2. Apply Early
3. Submit Sufficient & “GOOD” Drawings
4. Include Required Certification Statements
5. Respond & Understand Discrepancies
6. Drawings = Parts

7. *BOY SCOUT MOTTO:*
BE PREPARED

KEY APPLICATION POINTS

However (IMO) the “KEYEST” Point of all is:

COMMUNICATE

Any M&ESD Questions or Concerns

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M&ESD APPROVAL WEB LINKS

- <http://www.msha.gov/>
- <http://www.msha.gov/TECHSUPP/ACC/ACHOME.HTM>
- <http://www.msha.gov/TECHSUPP/ACC/application/application.htm>
- <http://www.msha.gov/TECHSUPP/ACC/StandardTestProcs/StandardTestProcs.asp>
- http://www.msha.gov/TECHSUPP/ACC/DBs_earch/PARlook.htm